



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,983	03/26/2004	Yar-Ming Wang	GP-304670	9619
7590		06/30/2009		
Kathryn A. Marra General Motors Corporation Mail Code 482-C23-B21 PO Box 300 Detroit, MI 48265-3000			EXAMINER	
			MAYEKAR, KISHOR	
			ART UNIT	PAPER NUMBER
			1795	
			MAIL DATE	DELIVERY MODE
			06/30/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/810,983	<b>Applicant(s)</b> WANG ET AL.
	<b>Examiner</b> Kishor Mayekar	<b>Art Unit</b> 1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on **24 April 2009**.  
 2a) This action is **FINAL**.      2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) **1-4,6-9,11-18 and 20** is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) **1-4,6-9,11-18 and 20** is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/1449)  
 Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_  
 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Amendment*

1. The amendment of 24 April 2009 has been entered. Claims 1 and 20 have been amended, and claims 10 and 19 have been cancelled. Claims 1-4, 6-9, 11-18 and 20 are pending in this application with claim 1 being independent claim.
  
2. Applicant's arguments with respect to claims 1-4, 6-9, 11-18 and 20 have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Rejections - 35 USC § 103*

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
  
4. Claims 1, 2, 4, 6-9, 11-17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman, Jr. et al. (US 6,264,823 B1) in view of Zaki ("Electrocleaning", 2000, Vol. 98, Issue 1, pp. 134-139) and Polan et al. (US 4,568,431), both secondary references cited in the last Office action. Hoffman's invention is directed to a non-caustic cleaning of conductive and non-conductive bodies. With regards to claim 1, Hoffman discloses a method comprising the step of immersing a conductive body to be

cleaned in a cleaning bath containing an aqueous solution containing disodium phosphate and sodium carbonate having a pH greater than 7.0 and less than about 10.0 (read on the recited non-aggressive base) and connected to a cathode of a direct current power source to electrically clean the body wherein the attachment of deposits and contaminants to outer surfaces of the body are removed from the body (see abstract; Fig. 1 and c. 4, l. 1-8). Hoffman also discloses that it is known to clean the body prior to coating (c. 1, l. 17-44), the higher the voltage, the higher the cleaning ability (c. 7, l. 30-31), and surface contaminants may float on the top of the cleaning solution (c. 8, l. 55-56). The differences between Hoffman and the claim are the recited producing gaseous hydrogen, current density and transporting.

As to the first difference, Zaki discloses in the abstract "[t]he basis function of electrocleaners is to remove soils from the surface that could not be removed by simply immersion soak and degreasing steps", where the soils including finely divided particles, such as metallic fines (generally referred to as smut). Zaki also discloses the liberation of hydrogen at the cathode (page 134) and recommends current densities (Table I) and values below the recommended current densities produce light to marginal electrocleaning (page 1360. As such, the producing is inherent in Hoffman's method.

As to the recited current density, Polan teaches in a process for producing electroplated metal foil, the steps of electrolytic cleaning the metal foil prior to the electroplating (c. 5, l. 3-68) with a caustic solution at a current density of 1 mA/cm<sup>2</sup> (0.1

A/dm<sup>2</sup>) to 500 mA/cm<sup>2</sup> (50 A/dm<sup>2</sup>). As such, based on the teachings of Zaki and Polan, the current density is an optimizing variable. The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Hoffman's teachings because it has been settled that proper adjustment of a known effective variable of a known or obvious process is within the capabilities of one having ordinary skill in the art, *In re Aller* 105 USPQ 233.

As to the transporting step, Polan teaches the provision of a surface impurity removing means including a skimmer floating on the surface of a treating solution (c. 2, l. 39-55) and the continuous withdrawal of solution from tank 14 (Fig. 2). The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Hoffman's teachings as shown by Polan because this would result in removing surface impurities and contaminants from a bath.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman '823 in view of Zaki and Polan '431 as applied to claims 1, 2, 4, 6-9, 11-17 and 20 above, and further in view of Lauke (US 4,568,438), another reference cited in the last Office action. Polan as applied above further discloses in col. 9, line 56 through col. 10, line 54 the continuous withdrawal of the solution to remove the surface impurities or contaminants from the treatment tank 14. The difference between the references as applied above and the instant is the provision of the recited eductor. Lauke teaches in a

method for making an electro-immersion finish the limitation (Figs. 1 and 2). The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the references' teachings as shown by Lauke because the selection of any of known recirculation of the solution with contaminant removal would have been within the level of ordinary skill in the art.

6. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman '823 in view of Zaki and Polan '431 as applied to claims 1, 2, 4, 6-9, 11-17 and 20 above, and further in view of Ogihara et al. (4,032,592). The difference between the references as applied above and the instant claim is the provision of recited cleaning solution. Ogihara teaches the limitation (Fig. 2 and c. 6, l. 20-62). The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the references' teachings as shown by Ogihara because the selection of any of known cleaning solutions would have been within the level of ordinary skill in the art.

*Response to Arguments*

7. Applicant's arguments filed 24 April 2008 have been fully considered but they are not persuasive because of the new ground of rejections as set forth in the paragraphs above.

*Conclusion*

8. Claims 1-4, 6-9, 11-18 and 20 are rejected.
  
9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).  
  
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.
  
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kishor Mayekar whose telephone number is (571) 272-1339. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kishor Mayekar/  
Primary Examiner, Art Unit 1795